

On Page 16, line 23, after "from," replace "Line Buffer 430" with --Interpolator 490--.

In the Claims:

Please amend claims 1-13, 16, 18, 20-22, 24, and 26-28 as follows:

1 1. (Amended) A graphics controller integrated circuit for upscaling a source video image
2 to generate an upscaled video image, the source video image being transmitted by a processing
3 unit comprising a plurality of uncompressed scan lines with each scan line comprising a set of
4 pixel data, the graphics controller integrated circuit comprising:

5 an encoder circuit integrated into the graphics controller integrated circuit for
6 receiving a set of uncompressed pixel data for a first scan line of the source
7 video image from the processing unit and generating a compressed data set
8 corresponding to the set of pixel data for the first scan line;

9 a local memory coupled to receive and store the compressed data set;

10 a decoder circuit integrated into the graphics controller integrated circuit for

11 retrieving the compressed data set in the local memory and for decompressing
12 the compressed data set to generate a decompressed pixel data set; and

13 an interpolator integrated into the graphics controller integrated circuit for

14 receiving the decompressed pixel data set and a set of pixel data for a second
15 scan line of the source video, the interpolator interpolating the decompressed
16 pixel data set and the set of pixel data for the second scan line to generate a set
17 of additional pixel data comprised in the upscaled video image.

1 2. (Amended) The graphics controller integrated circuit of claim 1 wherein a display
2 memory is provided for storing the set of uncompressed pixel data for the first scan line and the

3 set of uncompressed pixel data for the second scan line prior to being received by the [encoding]
4 encoder circuit and the interpolator respectively.

1 3. (Amended) The graphics controller integrated circuit of claim 1 wherein the decoder
2 circuit comprises a DPCM decoder and the encoder circuit comprises a DPCM encoder.

1 4. (Amended) The graphics controller integrated circuit of claim 3 wherein the DPCM
2 [decoder] encoder compresses the set of pixel data for the first scan line such that resulting
3 compressed data set comprises half the number bits compared to the number of bits in the set of
4 pixel data for the first scan line.

1 5. (Amended) The graphics controller integrated circuit of claim 3 wherein the
2 interpolator comprises a polyphase interpolator.

1 6. (Amended) The graphics controller integrated circuit of claim 3 wherein the DPCM
2 encoder comprises

3 a first adder for receiving uncompressed pixel data and a predicted value, the first
4 adder generating a difference of the uncompressed pixel data and the predicted
5 value;

6 a quantizer for generating the compressed data set by quantizing the difference;

7 a recoverer [circuit] for generating a recoverer value from the compressed data
8 set;

9 a second adder for adding the recoverer value with the predicted value to generate
10 an output; and

11 a predictor for generating the predicted value as a function of the output of the
12 second adder.

1 7. (Amended) The graphics controller integrated circuit of claim 6 wherein the predictor
2 comprises a set of flip-flops each for storing a bit of the output of the second adder.

1 8. (Amended) The graphics controller integrated circuit of claim 6 further comprising a
2 override circuit to avoid a overload condition in DPCM decoding and encoding.

1 9. (Amended) The graphics controller integrated circuit of claim 8 wherein the override
2 [circuit] avoids the overload condition by changing a predicted value to correspond to a present
3 pixel data value.

1 10. (Amended) The graphics controller integrated circuit of claim 8 further comprising a
2 [MVA] video motion block wherein the [MVA] video motion block comprises the DPCM
3 encoder, the DPCM decoder, the override [circuit] and the local memory.

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1 11. (Amended) The graphics controller integrated circuit of claim 10 further comprising
2 a video controller for sending a set of graphics pixels; and
3 a multiplexor for receiving the graphics pixels and pixel data of the upscaled
4 video image, and for selectively sending to a display unit one of the graphics
5 pixels and pixel data of the upscaled video image.

1 12. (Amended) The graphics controller integrated circuit of claim 11 wherein the
2 encoder circuit receives pixel data of the first scan line from a display memory.

1 13. (Amended) A computer system for displaying a source video image on a display
2 unit, said source video image comprising a plurality of uncompressed scan lines with each scan
3 line comprising a set of pixel data, said computer system comprising:
4 a processing unit for transmitting the source video image comprising a plurality of
5 uncompressed scan lines;
6 a display memory for storing graphics[/text] data;
7 a display unit; and
8 a graphics controller integrated circuit receiving the uncompressed pixel data of
9 said source video image from the processing unit and said graphics[/text] data,
10 and upscaling said source video image to generate an upscaled video image
11 prior to displaying said graphics[/text] and said upscaled source video image
12 on said display unit, said graphics controller circuit comprising:
13 an encoder circuit integrated into the graphics controller integrated circuit for
14 receiving a set of uncompressed pixel data for a first scan line of the source
15 video image and generating a compressed data set corresponding to the set of
16 pixel data for the first scan line;
17 a local memory coupled to receive and store the compressed data set;
18 a decoder circuit integrated into the graphics controller integrated circuit for
19 retrieving the compressed data set in the local memory and for decompressing
20 the compressed data set to generate a decompressed pixel data set; and
21 an interpolator integrated into the graphics controller integrated circuit for
22 receiving the decompressed pixel data set and a set of pixel data for a second
23 scan line of the source video, the interpolator interpolating the decompressed

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24 pixel data set and the set of pixel data for the second scan line to generate a set
25 of additional pixel data comprised in the upscaled video image.

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1 16. (Amended) The computer system of claim 15 wherein the DPCM [decoder] encoder
2 compresses the set of pixel data for the first scan line such that resulting compressed data set
3 comprises half the number bits compared to the number of bits in the set of pixel data for the first
4 scan line.

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1 18. (Amended) The computer system of claim 15 wherein the DPCM encoder
2 comprises:
3 a first adder for receiving pixel data and a predicted value, the first adder
4 generating a difference of the pixel data and the predicted value;
5 a quantizer for generating the compressed data set by quantizing the difference;
6 a recoverer [circuit] for generating a recoverer value from the compressed data
7 set;
8 a second adder for adding the recoverer value with the predicted value to generate
9 an output; and
10 a predictor for generating the predicted value as a function of the output of the
11 second adder.

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1 20. (Amended) The computer system of claim 18 further comprising a override [circuit]
2 to avoid a overload condition in DPCM decoding and encoding.

1 21. (Amended) The computer system of claim 20 wherein the override [circuit] avoids
2 the overload condition by changing a predicted value to correspond to a present pixel data value.

22. (Amended) The computer system of claim 20 further comprising [an MVA] a video motion block wherein the [MVA] video motion block comprises the DPCM encoder, the DPCM decoder, the override [circuit] and the local memory.

24. (Amended) A method of upscaling a source video image in a graphics controller integrated circuit, said source video image being transmitted by a processing unit comprising a plurality of uncompressed scan lines with each scan line comprising a set of pixel data, said method comprising the steps of

- receiving a first uncompressed scan line of said source video image;
- compressing the pixel data corresponding to said first scan line to generate a compressed data;
- storing said compressed data in a local memory;
- retrieving a second scan line of said source video image;
- retrieving said compressed data from [said] the local memory [circuit];
- decompressing said compressed data to generate said pixel data;
- generating a set of additional pixels by interpolating pixels in said first scan line and said second scan line wherein said additional pixels are comprised in an upscaled image of said source video image.

26. (Amended) The method of claim 25 further comprising the steps of storing said uncompressed source video image in a display memory wherein said step of receiving receives said first uncompressed scan line from said display memory.

1 27. (Amended) The method of claim 26 wherein said step of using DPCM generates
2 said compressed data comprising one half the number of bits compared to number of bits in the
3 pixel data of said uncompressed first scan line in the source video image.

1 28. (Amended) A graphics controller integrated circuit for displaying a source video
2 image on a display unit, said source video image being transmitted by a processing unit
3 comprising a plurality of uncompressed scan lines with each scan line comprising a set of pixel
4 data, said graphics controller integrated circuit comprising:

5 a DPCM encoder circuit integrated into the graphics controller integrated circuit
6 for receiving a set of uncompressed pixel data for a first scan line of said
7 source video image from the processing unit and generating a compressed data
8 set using a DPCM encoding scheme corresponding to the set of pixel data of
9 the first scan line;

10 a local memory coupled to receive and store the compressed data set;

11 a DPCM decoder circuit integrated into the graphics controller integrated circuit
12 for retrieving said compressed data set in said local memory and for
13 decompressing said compressed data set to generate a decompressed pixel data
14 set;

15 an interpolator integrated into the graphics controller integrated circuit for
16 receiving said decompressed pixel data set and a set of pixel data for a second
17 scan line of said source video, said interpolator interpolating the
18 decompressed pixel data set and the set of pixel data for the second scan line
19 to generate a set of additional pixel data comprised in [the] an upscaled image;

20 a video controller for receiving a graphics[/text] data from a host, and generating a
21 corresponding pixel data; and
22 a multiplexor for selectively forwarding to said display unit either pixel data
23 corresponding to said graphics[/text] data or pixel data of said upscaled image.
